Docket No.:

K-0090B





IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Fre Patent of

Young-Joon SONG

Certificate

FEB 2 4 2005

of Correction

Patent No.

6,721,299

Issued:

April 13, 2004

For:

PILOT SIGNALS FOR SYNCHRONIZATION AND/OR CHANNEL

ESITMATION

REQUEST FOR CERTIFICATE OF CORRECTION

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

It is respectfully requested that a Certificate of Correction be issued for the above-identified patent.

Errors were noted in Figures 9, 12A, 14B, 16C, 18A, 25D, 26B, and 27.

PTO ERROR - As the error was made by the Patent and Trademark Office, it is believed that no fee is due under 37 C.F.R. 1.322. However, please credit or debit Deposit Account No. 16-0607 as necessary to effect entry of the attached corrections.

X APPLICANT'S ERROR - In accordance with the provisions of 37 C.F.R. 1.323 and 1.20(a), our Check No. 12698 in the amount of \$100.00 is attached. Please credit or debit Deposit Account No. 16-0607 as necessary to effect entry of the attached corrections.

02/07/2005 SDENBOB1 00000033 6721299

· 01 FC:1811

100.00 OP

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Date: February 4, 2005

Respectfully submitted, FLESHNER & KIM ALP

Registration No. 36,186

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

PATENT NO.

: 6.721.299

DATED

: April 13, 2004

INVENTOR(S): Young-Joon SONG

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Replacement Sheets for Figures 9, 12A, 14B, 16C, 18A, 26B, 25D, and 27.

MAILING ADDRESS OF SENDER:

PATENT NO.___6,721,299

Fleshner & Kim, LLP PO Box 221200

Chantilly, Virginia 20153-1200

No. of additional copies

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Apr. 13, 2004

Sheet 8 of 47

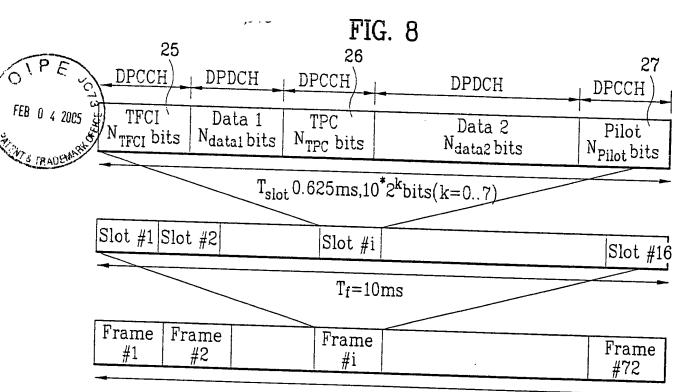
6,721,299 B1

FIG. 12A

Frame Synchronization Words
Slot Number 12345L
$C_1 = (1 \ 1 \ 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 0 \ $
$C_2 = (1\ 0\ 0\ 0\ 1\ 0\ 1\ 0\ 0\ 1\ 1\ 1\ 0\ 1\ 0\ 1)$
$C_3 = (1 \ 1 \ 0 \ 1 \ 1 \ 1 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0$
$C_4 = (0111011010001001)$
$C_5 = (1\ 0\ 1\ 1\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 1)$
$C_6 = (1 1 1 0 0 1 0 1 0 0 0 1 1 0 1 0)$
$C_7 = (0100001110111100)$
$C_8 = (1 \ 1 \ 1 \ 0 \ 1 \ 0 \ 0 \ 1 \ 0 \ 0 \ $

FIG. 12B

R(au) $ au$	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$R_{E}(\tau)$	16	4	0	4	0	-4	0	-4	-16	-4	0	-4	0	4	0	4
$R_{F}(au)$	16	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	0	-4
$R_{G}(\tau)$	16	4	0	-4	0	4	0	-4	-16	-4	0	4	0	-4	0	4
$R_{H}(au)$	16	-4	0	4	0	-4	0	4	-16	4	0	-4	0	4	0	-4
				F						F	2					



 $T_{\text{super}} = 720 \text{ms}$

FIG. 9

Symbol rate	8k	sps	16,3	2,64	1,12	8ksps			25	6,51	2.10)24k	SDS	
Symbol #	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #1	11	11	11	11	11		1							
2	11	11	11	11			1						11 11	10 01
3	11	10	11	01	11	01	1:			01			11	01
4	11	01	11	10	11	01	1	l · 11		01	11			10
5	11	10	11	10	11	11	11		11	00		01	11	
6	11	10	11	10	11	11	11		11	11	11			10
7	11	01	11	01		00		. 10				01	11	10
8	11	00	11	10	11	01	11			11	11	01	11	10
9	11	00	11	11	11	00	11		11	00		10	11	00
10	11	10	11	01	11	01			11	10	11	00	11	01
11	11	10	11	11	11	_	11		11	11	11	11	11	00
12	11	11	11		_	10	11		11	10	11	11	11	10
13					11	01	11		11	10	11	10	11	00
	11	10	11	00	11	01	11	10	11	01	11	11	11	10
14	11	11	11	10	11	00	11	00	11	10	11	10	11	00
15	11	00	11	01	11	00	11	01	11	10	11	00	11	00
16	11	00	11	00	11	00	11	10	11	00	11	00	11	00

FIG. 14B

			Np	ilot =	: 7						N _{pil}	ot =	8			
Bit #	0	1	2	3	4	5	6		0	1	2	3	4	5	6	7
Slot #1	1	1	1	1	1	0	1		1	1	1	1	1	1	1	0
2	1	1	0	1	1	1	1		1	1	1	0	1	1	1	1
3	1	0	0	1	0	1	1		1	0	1	0	1	0	1	1
4	1	1	0	1	1	1	1	 	1	1	1	0	1	1	1	1
5	1	1	1	1	1	0	1		1	1	1	1	1	1	1	0
6	1	1	0	1	1	1	1		1	1	1	0	1	1	1	1
7	1	1	1	1	0	1	1		1	1	1	1	1	0	1	1
8	1	1	0	1	0	0	1		1	1	1	0	1	0	1	0
9	1	0	0	1	0	1	1		1	0	1	0	1	0	1	1
10	1	0	1	1	0	0	1		1	0	1	1	1	0	1	0
11	1	1	1	1	1	0	1		1	1	1	1	1	1	1	0
12	1	0	1	1	0	0	1		1	0	1	1	1	0	1	0
13	1	0	0	1	0	1	1		1	0	1	0	1	0	1	1
14	1	0	1	1	0	0	1		1	0	1	1	1	0	1	0
15	1	0	0	1	1	0	1		1	0	1	0	1	1	1	0
16	1	0	1	1	_1_	1	1		1	0	1	1	1	1	1	1

Symbol rate		N _{pilo}	. = :		1			T				
		T' pilo	t	 -	ļ	_		V pilot	= 1	0		
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #1	11	11	11	10	11	11	11	10	11	11	11	01
2	11	10	11	11	11	10	11	11	11	01	11	11
3	11	00	11	01	11	00	11	01	11	11	11	01
4	11	10	11	11	11	10	11	11	11	10	11	00
5	11	11	11	10	11	11	11	10	11	00	11	01
6	11	10	11	11	11	10	11	11	11	01	11	00
7	11	11	11	01	11	11	11	01	11	00	11	10
8	11	10	11	00	11	10	11	00	11	01	11	11
9	11	00	11	01	11	00	11	01	11	00	11	10
10	11	01	11	00	11	01	11	00	11	10	11	00
11	11	11	11	10	11	11	11	10	11	00	11	10
12	11	01	11	00	11	01	11	00	11	01	11	11
13	11	00	11	01	11	00	11	01	11	11	11	10
14	11	01	11	00	11	01	11	00	11	10	11	11
15	11	00	11	10	11	00	11	10	11	11	11	01
16	11	01	11	11	11	01	11	11	11	10	11	00

FIG. 16D

	<u> </u>		·
Symbol rate	Symbol #	Channel	Corresponding word of length L=16
	1	I-CH	C1
$N_{pilot} = 8$	<u>.</u>	Q-CH	C ₂
phot	0	I-CH	C ₃
	3	Q-CH	C ₄
	1	I-CH	C ₁
	L	Q-CH	C ₂
	3	I-CH	С3
N _{pilot} =16		Q-CH	C ₄
phot 10	5	I-CH	C ₅
		Q-CH	C ₆
	. 7	I-CH	C ₇
		Q-CH	C ₈

FIG. 17C

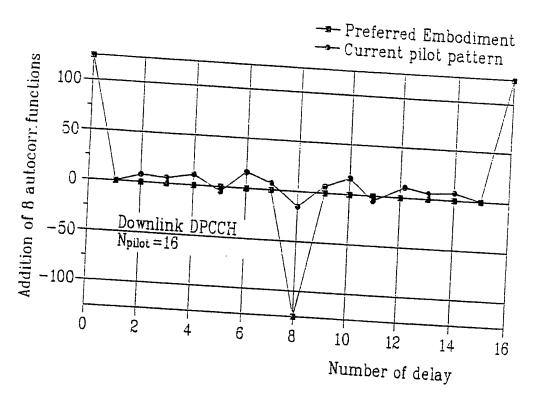


FIG. 18A

Parameters	70
Slot per frame	Downlink
Number of hits in the Doggy	16
(1 HOC/ TPC/ TPCI)	4/2/0
Number of bits in the DPDCH	
ber each slot	4
Spreading Factor (DPDCH)	
Spreading factor (DPCCH)	512
Modulation	512
3dB bandwidth	QPSK
Shaping filter	4.096MHz
Power amplifier	Root raised cosine (roll off 0.22)
	Ideal
Propogation channel	AWGN

FIG. 25C

		Npilot	= 8				N	pilot =	16			
Symbol #	0	1	2	3	0	1	2	3	4.	5	6	7
Slot #1	11	00	00	10	11	00	00	10	11	00	00	10
2	11	00	00	01	11	00	00	01	11	10	00	10
3	11	11	00	00	11	11	00	00	11	10	00	11
4	11	10	00	01	11	10	00	01	11	00	00	00
5	11	11	00	11	11	11	00	11	11	01	00	10
6	11	00	00	10	11	00	00	10	11	11	00	00
7	11	10	00	10	11	10	00	10	11	01	00	11
8	11	10	00	11	11	10	00	11	11	10	00	11
9	11	00	00	00	11	00	00	00	11	01	00	01
10	11	01	00	10	11	01	00	10	11	01	00	01
11	11	11	00	00	11	11	00	00	11	00	00	10
12	11	01	00	11	11	01	00	11	11	00	00	01
13	11	10	00	11	11	10	00	11	11	11	00	00
14	11	01	00	01	11	01	00	01	11	10	00	01
15	11	01	00	01	11	01	00	01	11	11	00	11

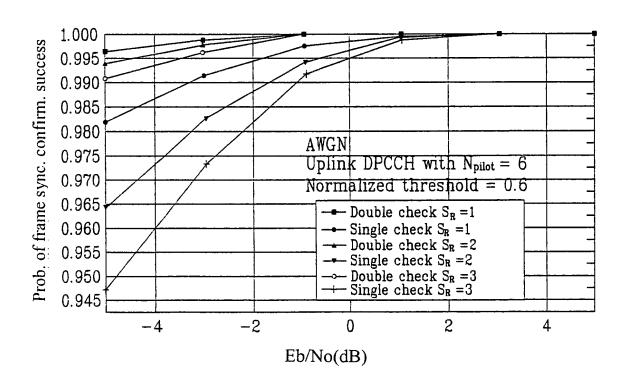
FIG. 25D

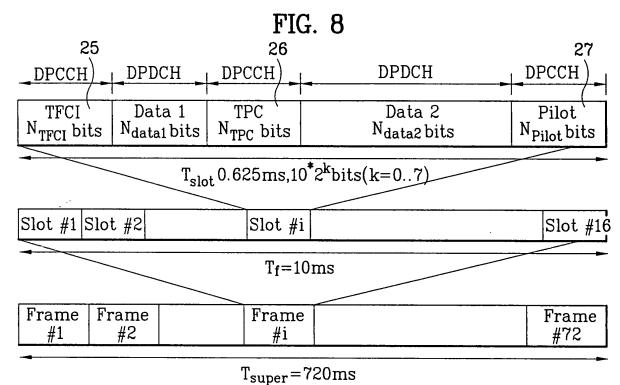
Symbol rate	Symbol #	Channel	Corresponding word of length 15
	4	I-CH	-C3
	1	Q-CH	C4
$N_{pilot} = 8$	3	I–CH	Cı
		Q-CH	— C2
	1	I–CH	—Сз
	1 1	Q-CH	C4
	3	I-CH	Cı
$N_{pilot} = 16$	ا ۲	Q-CH	-C2
Topuot 10	5	I-CH	-C7
) [Q-CH	Св
	7	I-CH	C5
	'	Q-CH	-Св

FIG. 26A

Parameters	Uplink
Number of slots per frame	15
Number of bits in the DPCCH(Pilot/TPC/TFCI/FBI)	6/2/2/0
Number of bits in the DPDCH per each slot	10
Spreading factor (DPDCH)	256
Spreading factor (DPCCH)	256
Modulation	HPSK
3dB bandwidth	3.84MHz
Shaping filter	Root raised cosine (roll off 0.22)
Power amplifier	Ideal
Propagation channel	AWGN

FIG. 26B





super - / Coms

FIG. 9

Symbol Symbol

G1-1-	e 8ksps 16,32,64,128ksps							256,512,1024ksps									
Symblo rate	OKS	ps	16,32	,64	128	ksps			256	,512,	10%	4ks	ps				
S ymblo #	0	1	0	1	2	3	0	1	2	3	4	5	6	7			
Slot #1	11	11	11	11	11	11	11	11	11	11	11	11	11	10			
2	11	11	11	11	11	01	11	10	11	10	11	10	11	01			
3	11	10	11	01	11	01	11	10	11	01	11	11	11	01			
4	11	01	11	10	11	01	11	11	11	01	11	00	11	10			
5	11	10	11	10	11	11	11	11	11	00	11	01	11	10			
6	11	10	11	10	11	11	11	11	11	11	11	01	11	10			
7	11	01	11	01	11	00	11	10	11	11	11	01	11	10			
8	11	00	11	10	11	01	11	01	11	00	11	10	11	00			
9	11	00	11	11	11	00	11	11	11	10	11	00	11	01			
10	11	10	11	01	11	01	11	01	11	11	11	11	11	00			
11	11	10	11	11	11	10	11	10	11	10	11	11	11	10			
12	11	11	11	01	11	01	11	01	11	10	11	10	11	00			
13	11	10	11	00	11	01	11	10	11	01	11	11	11	10			
14	11	11	11	10	11	00	11	00	11	10	11	10	11	00			
15	11	00	11	01	11	00	11	01	11	10	11	00	11	00			
16	11	00	11	00	11	00	11	10	11	00	11	00	11	00			

UNITED STATES PATENT AND TRADEMARK OFFICE **CERTIFICATE OF CORRECTION**

PATENT NO. **DATED**

: 6,721,299 B1

: April 13, 2004

Page 1 of 8

INVENTOR(S): Young-Joon Song

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Replacement Drawing Sheets for Figures 9, 12A, 14B, 16C, 18A, 26B, 25D, and 27 are as follows.

Signed and Sealed this

Fifteenth Day of November, 2005

JON W. DUDAS Director of the United States Patent and Trademark Office

Apr. 13, 2004

Sheet 5 of 47

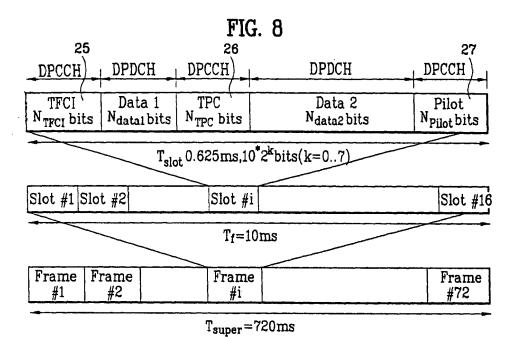


FIG. 9

Symbol rate	8ks	ps	16,32	,64,	128	ksps		1	256	512,	102	4ks	ps	
Symbol #	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #1	11	11	11	11	11	11	11	11	11	11	11	11	11	10
2	11	11	11	11	11	01	11	10	11	10	11	10	11	01
3	11	10	11	01	11	01	11	10	11	01	11	11	11	01
4	11	01	11	10	11	01	11	11	11	01	11	00	11	10
5	11	10	11	10	11	11	11	11	11	00	11	01	11	10
6	11	10	11	10	11	11	11	11	11	11	11	01	11	10
7	11	01	11	01	11	00	11	10	11	11	11	01	11	10
8	11	00	11	10	11	01	11	01	11	00	11	10	11	00
9	11	00	11	11	11	00	11	11	11	10	11	00	11	01
10	11	10	11	01	11	01	11	01	11	11	11	11	11	00
11	11	10	11	11	11	10	11	10	11	10	11	11	11	10
12	11	11	11	01	11	01	11	01	11	10	11	10	11	00
13	11	10	11	00	11	01	11	10	11	01	11	11	11	10
14	11	11	11	10	11	00	11	00	11	10	11	10	11	00
. 15	11	00	11	01	11	00	11	01	11	10	11	00	11	00
16	11	00	11	00	11	00	11	10	11	00	11	00	11	00

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FIG. 12A

Frame Synchronization Words							
Slot Number 12345L							
$C_1 = (1 \ 1 \ 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 0 \ $							
$C_2 = (1\ 0\ 0\ 0\ 1\ 0\ 1\ 0\ 1\ 1\ 1\ 0\ 1\ 0\ 1)$							
$C_3 = (1 \ 1 \ 0 \ 1 \ 1 \ 1 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0$							
$C_4 = (0111011010001001)$							
$C_5 = (1\ 0\ 1\ 1\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 1)$							
$C_6 = (1 \ 1 \ 1 \ 0 \ 0 \ 1 \ 0 \ 1 \ 0 \ 1 \ 0 \ 1 \ 0)$							
$C_7 = (0100001110111100)$							
$C_8 = (1 \ 1 \ 1 \ 0 \ 1 \ 0 \ 0 \ 1 \ 0 \ 0 \ $							

FIG. 12B

$R(\tau)$ τ	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
$R_{E}\left(au ight)$	16	4	0	4	0	-4	0	-4	-16	-4	0	-4	0	4	0	4
$R_{F}(\tau)$	16	-4	0	-4	0	4	0	4	-16	4	0	4	0	-4	0	-4
$R_{G}(au)$	16	4	0	-4	0	4	0	-4	-16	-4	0	4	0	-4	0	4
$R_{ m H}\left(au ight)$	16	-4	0	4	0	-4	0	4	-16	4	0	-4	0	4	0	-4
-		R_1										F	 √ R ₂			/

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FIG. 14B

	N _{pilot} = 7									Npile	ot=	8			
Bit #	0	1	2	3	4	5	6	0	1	2	3	4	5	6	7
Slot #1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
2	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1
3	1	0	0	1	0	1	1	1	0	1	0	1	0	1	1
4	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1
5	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
6	1	1	0	1	1	1	. 1	1	1	1	0	1	1	1	1
7	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1
8	1	1	0	1	0	0	1	1	1	1	0	1	0	1	0
9	1	0	0	1	0	1	1	1	0	1	0	1	0	1	1
10	1	0	1	1	0	0	1	1	0	1	1	1	0	1	0
11	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0
12	1	0	1	1	0	0	1	1	0	1	1	1	0	1	0
13	1	0	0	1	0	1	1	1	0	1	0	1	0	1	1 .
14	1	0	1	1	0	0	1	1	0	1	1	1	0	1	0
15	1	0	0	1	1	0	1	1	0	1	0	1	1	1	0
16	1	0	1	1	1	1	1	1	0	1	1_	1	1	1	1

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FIG. 16C

Symbol rate	$N_{pilot} = 8$		N _{pilot} = 16						
Symbol #	0 1 2	3	0	1 2	3	4	5	6	7
Slot #1	11 11 11	10	11		1 10	11	11	11	01
2	11 10 11	11	11	10 1	11 11	11	01	11	11
3	11 00 11	01	11	00 1	11 01	11	11	11	01
4	11 10 11	11	11	10 1	11 11	11	10	11	00
5	11 11 11	10	11	11 1	11 10	11	00	11	01
6	11 10 11	11	11	10 1	11 11	11	01	11	00
7	11 11 11	01	11	11 1	11 01	11	00	11	10
8	11 10 11	00	11	10	11 00	11	01	11	11
9	11 00 11	01	11	00	11 01	11	00	11	10
10	11 01 11	00	11	01	11 00	11	10	11	00
11	11 11 11	10	11	11	11 10	11	00	11	10
12	11 01 11	00	11	01	11 00	11	01	11	11
13	11 00 11	01	11	00	11 01	11	11	11	10
14	11 01 11	00	11	01	11 00	11	10	11	11
15	11 00 11	10	11	00	11 10	11	11	11	01
16	11 01 11	11	11	01	11 11	11	10	11	00

FIG. 16D

Symbol rate	Symbol #	Channel	Corresponding word of length L=16
	•	I-CH	Ci
N8	1	Q-CH	C2
N _{pilot} =8		I-CH	C ₃
	3	Q-CH	C ₄
	1	I-CH	C_1
	1	Q-CH	C ₂
	3	I-CH	C ₃
N _16	J	Q-CH	C ₄
N _{pilot} =16	5	I-CH	C ₅
	3	Q-CH	Св
	. 7	I-CH	C7
		Q-CH	Св

Apr. 13, 2004

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FIG. 17C

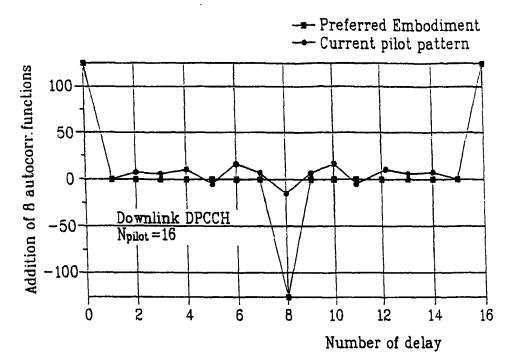


FIG. 18A

Parameters	Downlink					
Slot per frame	16					
Number of bits in the DPCCH (Pilot/TPC/TFCI)	4/2/0					
Number of bits in the DPDCH per each slot	4					
Spreading Factor (DPDCH)	512					
Spreading factor (DPCCH)	512					
Modulation	QPSK					
3dB bandwidth	4.096MHz					
Shaping filter	Root raised cosine (roll off 0.22)					
Power amplifier	Ideal					
Propogation channel	AWGN					

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FIG. 25C

		Npilot	= 8				N	pilot =	16			
Symbol #	0	1	2	3	0	1	2	3	4.	5	6	7
Slot #1	11	00	00	10	11	00	00	10	11	00	00	10
2	11	00	00	01	11	00	00	01	11	10	00	10
3	11	11	00	00	11	11	00	00	11	10	00	11
4	11	10	00	01	11	10	00	01	11	00	00	00
5	11	11	00	11	11	11	00	11	11	01	00	10
6	11	00	00	10	11	00	00	10	11	11	00	00
7	11	10	00	10	11	10	00	10	11	01	00	11
8	11	10	00	11	11	10	00	11	11	10	00	11
9	11	00	00	00	11	00	00	00	11	01	00	01
10	11	01	00	10	11	01	00	10	11	01	00	01
11	11	11	00	00	11	11	00	00	11	00	00	10
12	11	01	00	11	11	01	00	11	11	00	00	01
13	11	10	00	11	11	10	00	11	11	. 11	00	00
14	11	01	00	01	11	01	00	01	11	10	00	01
15	11	01	00	01	11	01	00	01	11	11	00	11

FIG. 25D

Symbol rate	Symbol #	Channel	Corresponding word of length 15
	1	I-CH	-C3
V 0		Q-CH	C4
N _{pilot} = 8	3	I-CH	Cı
		Q-CH	- C2
	1	I-CH	-Сз
	1	Q-CH	C4
	3	I-CH	Cı
$N_{pilot} = 16$		Q-CH	-C2
,	5	I–CH	-C7
•		Q-CH	Св
	7	I-CH	Св
	'	Q-CH	-Ce

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FIG. 26A

Parameters	Uplink
Number of slots per frame	15
Number of bits in the DPCCH(Pilot/TPC/TFCI/FBI)	6/2/2/0
Number of bits in the DPDCH per each slot	10
Spreading factor (DPDCH)	256
Spreading factor (DPCCH)	256
Modulation	HPSK
3dB bandwidth	3.84MHz
Shaping filter	Root raised cosine (roll off 0.22)
Power amplifier	Ideal
Propagation channel	AWGN

FIG. 26B

